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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,776	08/22/2001	Charles M. Lieber	H00498.70054/TJO/DPM	8935
23628	7590	05/16/2006	EXAMINER	
WOLF GREENFIELD & SACKS, PC NULL FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2206			CRANE, SARA W	
			ART UNIT	PAPER NUMBER
			2811	
DATE MAILED: 05/16/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,776

Applicant(s)

LIEBER ET AL.

Examiner

Sara W. Crane

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3 March 2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims pending in the application are 1-31,38-47,49-72,75,76,97,98,102-105,109-111,113-116,118-201,261,262 and 374-377.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 3,4,9-31,49-55,102,105,109,111,113-116,121-174,176-180,182,184,185,190,192,193,196-201,261,262 and 334-373.

Continuation of Disposition of Claims: Claims rejected are 1,2,5-8,38-47,56-72,75,76,97,98,110,118-120,175,181,183,186-189,191,194,195 and 374-377.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 5, 38-47, 56-72, 75, 76, 97-98, 110, 118-120, 175, 181, 183, 186-189, 191, 194, 195 and 374-377 are rejected under 35 U.S.C. 102(e) as being anticipated by Keukes et al. (6,559,468).

See the discussion of the reference in the Office action of 30 august 2005. With respect to the newly-added limitations in the independent claims, Keukes figure 5 shows a bipolar transistor embodiment, which is discussed beginning at the bottom of column 6. The "first semiconductor nanowire" can be read on region 34a of the device of the figure, the "second semiconductor nanowire" is read on region 36, and the "third semiconductor nanowire" is read on region 34b. (Each of these distinguishable regions is substantially one-dimensional, or a "wire," and the dimensions of each of these regions are of nanometer scale.) Emitter, base, and collector functions are taught at column 7, lines 34-62. As noted in the previous Office action, the process limitations can be given patentable weight if Applicant shows that the process step(s) recited necessarily give rise to a distinct feature. Here, Applicant has argued that the (small) variation in diameter of the recited nanowires is a distinction over the prior art. However, as noted previously, the nanowire regions of the Kuekes devices appear to be of substantially the same diameter. As noted above, nothing in the claim language prevents the claim regions of emitter, base, and collector, from being read on the

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Keukes emitter, base, and collector regions of figure 5, which are all collinear with one another, and therefore one would not expect to see much, if any, variation in diameter between these three wire regions. So the process limitations have not been shown to give rise to patentably distinct structure.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuekes.

See reasons of record in the previous Office action.

Response to Amendment

Applicant argues that the process limitations can be relied upon for patentability. As noted above, however, the process simply states that three nanowires are taken from a population having a variation in individual average diameter of less than 20%. The structure produced by the process would presumably be emitter, base, and collector nanowires of substantially the same diameter. The Keukes nanowire emitter, base, and collectors are of substantially the same diameter, so it would appear that no distinct structural feature distinguishes that claimed nanowires from the prior art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (571) 272-1652.

The supervisor for Art Unit 2811, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sara W. Crane
Primary Examiner
Art Unit 2811